UL Verification Services Inc.
7036 Snowdrift Road
Allentown, PA 18106
610-774-1300

Photometric Test Report

Relevant Standards
IES LM-79-2008, IES LM-20-2013
ANSI C82.77-2002

Prepared For
MSI, LLC
Michael Pulido
622 Banyan Trail, Suite 200
Boca Raton, FL 33431

Catalog Number
zPAR38404012T3N
Order Number
10585963
Test Number
830278

Test Date

2015-01-28 - 2015-01-29

Prepared By

Derek Smarr, Technician

Approved By

Jeffrey Lockner, Project Engineer

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Lamp Description: Molded plastic housing, formed aluminum heatsink patterned plastic optic / enclosure
Lamp: Three white LEDs
Mounting: VBU

Lamp

Lamp Characteristics

Luminous Diameter: 2.75 in.

Summary of Results

Integrating Sphere

Luminous Flux:	1268	Lumens
Efficacy:	102.5	lm/w
CCT:	4030	K
CRI (Ra):	83.7	

Distribution

Total Luminaire Output:	1219 Lumens
Luminaire Efficacy:	102.0 lm/w
Maximum Candela:	2066 Candela

Electrical Data at 120 VAC

Test Temperature:	25.0	°C
Voltage:	120.0	VAC
Current:	0.1057	A
Power:	12.37	W
Power Factor:	0.976	
Frequency:	60	Hz
Current THD:	17.0	%

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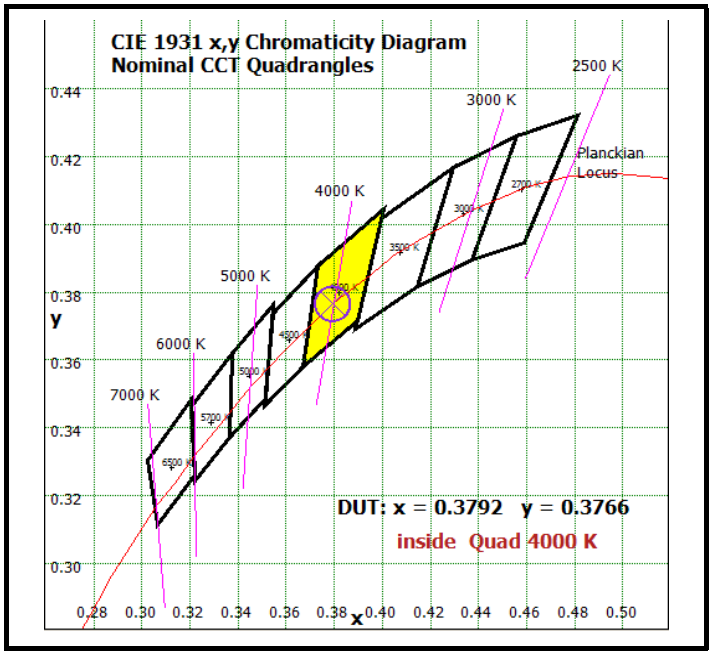
Color Quality - Integrating Sphere

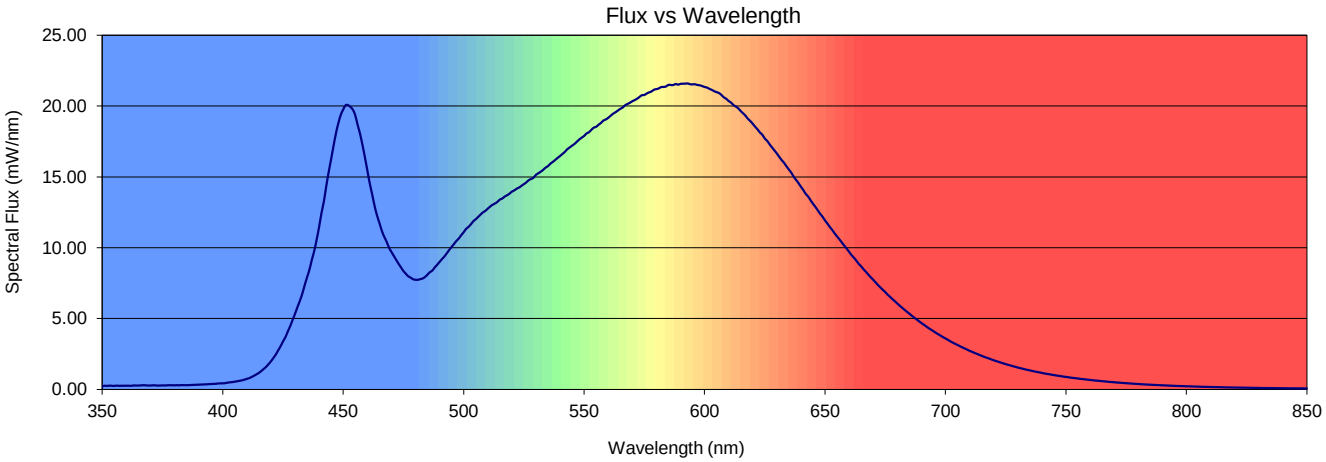
Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.0 °C	120.0 VAC	0.1057 A	12.37 W	0.976	60 Hz	17.0 %

Summary of Results

Luminous Flux:	1268 Lumens
Efficacy:	102.5 lm/w
CCT:	4030 K
CRI (Ra):	83.7
CRI (R9):	13.9
Chromaticity (x):	0.3792
Chromaticity (y):	0.3766
Chromaticity (u):	0.2243
Chromaticity (v):	0.3342
Chromaticity (u'):	0.2243
Chromaticity (v'):	0.5013
Duv:	0.0004





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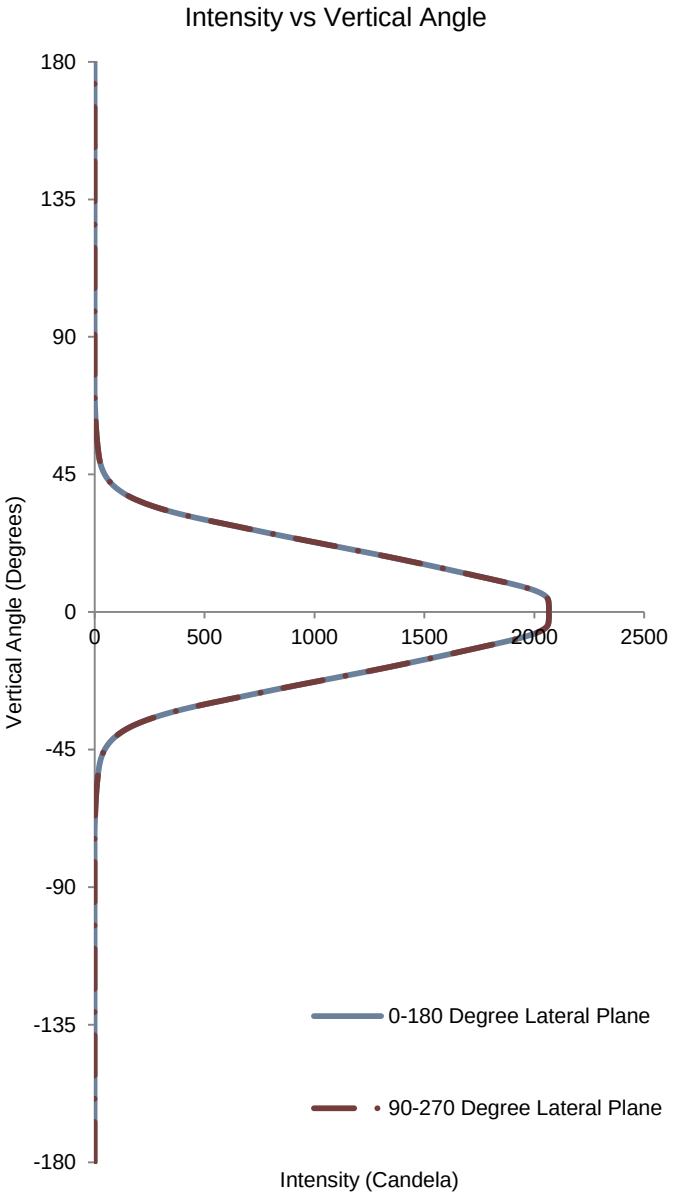
Distribution - Goniophotometer



Test Conditions

Test Temperature:	25.0	°C
Voltage:	120.0	VAC
Current:	0.1020	A
Power:	11.93	W
Power Factor:	0.974	
Frequency:	60	Hz
Current THD:	17.9	%

Total Lumen Output:	1219	Lumens
Luminaire Efficacy:	102	Lumens/Watt
CIE Type:	Direct	
Spacing Criterion:	0.71	All Directions

Center Beam Intensity:	2066	Candela
Central Cone Intensity:	2064	Candela
Beam Flux:	718.4	Lumens
Beam Angle 0-180:	44.8	Degrees
Beam Angle 90-270:	44.8	Degrees
Field Angle 0-180:	72.4	Degrees
Field Angle 90-270:	72.4	Degrees

Data was acquired using the calibrated photodetector method of absolute photometry.

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Candela Tabulation

Lateral Angle (Degrees)

Vertical Angle (Degrees)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
0	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066
1	2067	2067	2067	2067	2067	2067	2067	2067	2067	2067	2067	2067	2067	2067	2067	2067
2	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066
3	2065	2065	2065	2065	2065	2065	2065	2065	2065	2065	2065	2065	2065	2065	2065	2065
4	2063	2063	2063	2063	2063	2063	2063	2063	2063	2063	2063	2063	2063	2063	2063	2063
5	2054	2054	2054	2054	2054	2054	2054	2054	2054	2054	2054	2054	2054	2054	2054	2054
6	2034	2034	2034	2034	2034	2034	2034	2034	2034	2034	2034	2034	2034	2034	2034	2034
7	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
8	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961
9	1909	1909	1909	1909	1909	1909	1909	1909	1909	1909	1909	1909	1909	1909	1909	1909
10	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850
11	1788	1788	1788	1788	1788	1788	1788	1788	1788	1788	1788	1788	1788	1788	1788	1788
12	1726	1726	1726	1726	1726	1726	1726	1726	1726	1726	1726	1726	1726	1726	1726	1726
13	1663	1663	1663	1663	1663	1663	1663	1663	1663	1663	1663	1663	1663	1663	1663	1663
14	1602	1602	1602	1602	1602	1602	1602	1602	1602	1602	1602	1602	1602	1602	1602	1602
15	1538	1538	1538	1538	1538	1538	1538	1538	1538	1538	1538	1538	1538	1538	1538	1538
16	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473
17	1407	1407	1407	1407	1407	1407	1407	1407	1407	1407	1407	1407	1407	1407	1407	1407
18	1340	1340	1340	1340	1340	1340	1340	1340	1340	1340	1340	1340	1340	1340	1340	1340
19	1272	1272	1272	1272	1272	1272	1272	1272	1272	1272	1272	1272	1272	1272	1272	1272
20	1202	1202	1202	1202	1202	1202	1202	1202	1202	1202	1202	1202	1202	1202	1202	1202
25	848	848	848	848	848	848	848	848	848	848	848	848	848	848	848	848
30	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514
35	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
40	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109
45	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
50	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
55	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
60	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
65	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
70	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Utilization of Lumens - Zonal Cavity Method

Effective Floor Cavity Reflectance 20%												
Ceiling Cavity Reflectance	90				80				70			
Wall Reflectance	70	50	30	10	70	50	30	10	70	50	30	10
Room Cavity Ratio (RCR)	** Values are expressed as Lumens delivered to the task surface **											
0	1486	1486	1486	1486	1451	1451	1451	1451	1417	1417	1417	1417
1	1421	1386	1355	1327	1390	1358	1330	1305	1360	1332	1307	1285
2	1356	1296	1246	1205	1328	1274	1229	1191	1302	1253	1213	1178
3	1294	1216	1155	1108	1269	1198	1143	1099	1246	1182	1131	1090
4	1236	1144	1078	1028	1213	1130	1069	1022	1192	1116	1060	1016
5	1180	1079	1010	960	1160	1068	1003	956	1141	1057	997	952
6	1128	1021	951	901	1110	1011	946	898	1093	1002	940	895
7	1078	968	898	850	1062	960	894	847	1047	952	890	845
8	1032	920	850	803	1018	913	847	802	1004	906	844	800
9	989	876	807	762	976	870	805	761	963	864	802	759
10	949	835	768	724	937	830	766	723	926	825	764	722

Ceiling Cavity Reflectance	50				30			10			0
Wall Reflectance	70	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as Lumens delivered to the task surface **										
0	1354	1354	1354	1354	1297	1297	1297	1244	1244	1244	1219
1	1305	1283	1263	1245	1238	1223	1208	1197	1185	1173	1152
2	1254	1214	1181	1152	1179	1152	1128	1145	1124	1105	1085
3	1203	1150	1108	1073	1121	1086	1056	1094	1065	1040	1022
4	1154	1091	1042	1004	1067	1026	993	1045	1010	982	964
5	1107	1036	983	943	1016	971	935	998	959	927	911
6	1062	985	930	889	968	920	883	953	911	878	862
7	1019	937	881	841	923	874	836	910	866	832	817
8	978	894	837	797	882	831	794	870	825	790	775
9	940	853	797	757	843	791	754	833	786	752	737
10	904	816	759	721	807	755	719	798	751	717	702

Average Luminance Table (cd/m²)

Horizontal Angle (Degrees)

Vertical Angle (Degree)	0	45	90
0	539200	539200	539200
45	17000	17000	17000
55	5844	5844	5844
65	2055	2055	2055
75	0	0	0
85	0	0	0

This test was conduted using photometry techniques according to standard IES procedures. The user must therefore use caution in the following situations: 1) This test was performed using a specific ballast/lamp combination. Extrapolation of this data for other ballast/lamp combinations may produce erroneous results. 2) This test was conducted in a controlled laboratory environment where the ambient temperature was held at 25^{0}C ±1^{0}C. Field performance may differ particularly in regards to change in luminous output as a result of difference in ambient temperature and method of mounting the luminaire.

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Zonal Lumen Tabulation (5 degree zones)

Zone (Degrees)	Lumens	Zone (Degrees)	Lumens	Zone (Degrees)	Lumens	Zone (Degrees)	Lumens
0-5	49.3	45-50	12.9	90-95	0	135-140	0
5-10	140.4	50-55	7.4	95-100	0	140-145	0
10-15	199.9	55-60	4.5	100-105	0	145-150	0
15-20	225.0	60-65	2.4	105-110	0	150-155	0
20-25	213.7	65-70	1.0	110-115	0	155-160	0
25-30	171.0	70-75	0.1	115-120	0	160-165	0
30-35	108.3	75-80	0	120-125	0	165-170	0
35-40	56.4	80-85	0	125-130	0	170-175	0
40-45	26.7	85-90	0	130-135	0	175-180	0

Polar Plot (Candela)